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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Takeshi Nakamura

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10/30/2008

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EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

10/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,289	Applicant(s) NAKAMURA, TAKESHI	
	Examiner Camie S. Thompson	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed July 3, 2008 are acknowledged.
2. Examiner acknowledges amended claims 1 and 12-20.
3. Examiner acknowledges newly added claims 21-24.
4. The rejection of claims 1-8, 10-13 and 16-20 under 35 U.S.C. 102(b) as being anticipated by JP 10-194856 is overcome by applicant's amendment.
5. The rejection of claims 14-14 under 35 U.S.C. 103(a) as being unpatentable over JP 10-14856 in view of Yamaguchi et al., U.S. Patent Number 6,723,382 is overcome by applicant's amendment.
6. The rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over JP 10-194856 in view of Grueber et al., U.S. Patent Number 6,838,162 is overcome by applicant's amendment.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 12 and 17-24 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-272049.

The Japanese reference discloses a fiber reinforced composite comprising a fiber fabric that comprises heat resistant textiles or fiber bundle with a polymer matrix adhered to the fabric (see

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reference claim 4). Additionally, the reference discloses that the fiber bundle comprises glass (silicon oxide) fiber and carbon fiber to form a bundle as per instant claims 1-5 (see paragraph 0007). The reference discloses that the matrix adhered to the fabric increases interlaminar strength.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-8 and 10-13 and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-194856 in view of JP 2000-272040.

The Japanese '856 reference discloses a ceramic composite comprising a combination of higher elasticity fibers with fibers having low elasticity in a ceramic matrix (see abstract). Additionally, the Japanese '856 reference discloses that the high elasticity fibers are SiC and the low elasticity fibers are SiCO (see claim 4). Also, the reference discloses that low elasticity fibers, Si-Ti-C-O can be used with the SiCO fibers as per instant claim 6. The '856 reference discloses that the composite has increase crack propagation resistance. Reference claim 2 discloses that ceramic base material is produced by a reaction sintering method or CVI methods as per instant claims 12-13 and 16. The Japanese '856 reference discloses that the fibers are combined into a textile, which indicates that the fibers are in the form of a thread or strand as per instant claims 17-18 and 20. The reference discloses that the ratio of the two fibers is in the range from 1:1 to 2:1 and

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would therefore comprise different phases and would have a predetermined density. The '856 reference does not disclose that the matrix is adhered to the fabric as required by the present claims. Japanese reference 2000-272040 discloses a fiber reinforced composite comprising a fiber fabric that comprises heat resistant textiles or fiber bundle with a polymer matrix adhered to the fabric (see reference claim 4). Additionally, the '040 reference discloses that the fiber bundle comprises glass fiber and carbon fiber (see paragraph 0007). The '040 reference discloses that the polymeric matrix adhered to the fabric increases interlaminar strength. Therefore, it would have been obvious to one of ordinary skill in the art to have the JP 10-194856 reference have the ceramic matrix adhered to the fabric in order to have a fabric that has high strength and excellent thermal characteristics.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-194856 in view of JP2000-272040 and in further view of Grueber et al., U.S. Patent Number 6,838,162. The Japanese '856 reference discloses a ceramic composite comprising a combination of higher elasticity fibers with fibers having low elasticity in a ceramic matrix (see abstract). Additionally, the Japanese '856 reference discloses that the high elasticity fibers are SiC and the low elasticity fibers are SiCO (see claim 4). Also, the reference discloses that low elasticity fibers, Si-Ti-C-O can be used with the SiCO fibers as per instant claim 6. The '856 reference discloses that the composite has increase crack propagation resistance. Reference claim 2 discloses that ceramic base material is produced by a reaction sintering method or CVI methods as per instant claims 12-13 and 16. The Japanese '856 reference discloses that the fibers are combined into a textile, which indicates that the fibers are in the form of a thread or strand as per instant claims 17-18

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and 20. The reference discloses that the ratio of the two fibers is in the range from 1:1 to 2:1 and would therefore comprise different phases and would have a predetermined density. The '856 reference does not disclose that the matrix is adhered to the fabric as required by the present claims. Japanese reference 2000-272040 discloses a fiber reinforced composite comprising a fiber fabric that comprises heat resistant textiles or fiber bundle with a polymer matrix adhered to the fabric (see reference claim 4). Additionally, the '040 reference discloses that the fiber bundle comprises glass fiber and carbon fiber (see paragraph 0007). The '040 reference discloses that the polymeric matrix adhered to the fabric increases interlaminar strength. Therefore, it would have been obvious to one of ordinary skill in the art to have the JP 10-194856 reference have the ceramic matrix adhered to the fabric in order to have a fabric that has high strength and excellent thermal characteristics. The '856 reference does not disclose carbon as the auxiliary fiber. The Grueber reference discloses a composite comprising a ceramic matrix and two different fiber factions. The Grueber reference also discloses the use of high temperature resistant fibers such as carbon fibers (see abstract). Carbon fibers affect the crack resistance propagation of the composite due to their high temperature resistance. Therefore, it would have been obvious to one of ordinary skill in the art to use carbon fibers in the Japanese '856 reference in order to have a composite that has increased crack resistance.

12. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-194856 in view of JP 2000-272040 and in further view of Yamaguchi et al., U.S. Patent Number 6,723,382.

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The Japanese '856 reference discloses a ceramic composite comprising a combination of higher elasticity fibers with fibers having low elasticity in a ceramic matrix (see abstract). Additionally, the Japanese '856 reference discloses that the high elasticity fibers are SiC and the low elasticity fibers are SiCO (see claim 4). Also, the reference discloses that low elasticity fibers, Si-Ti-C-O can be used with the SiCO fibers as per instant claim 6. The '856 reference discloses that the composite has increase crack propagation resistance. Reference claim 2 discloses that ceramic base material is produced by a reaction sintering method or CVI methods as per instant claims 12-13 and 16. The Japanese '856 reference discloses that the fibers are combined into a textile, which indicates that the fibers are in the form of a thread or strand as per instant claims 17-18 and 20. The reference discloses that the ratio of the two fibers is in the range from 1:1 to 2:1 and would therefore comprise different phases and would have a predetermined density. The '856 reference does not disclose that the matrix is adhered to the fabric as required by the present claims. Japanese reference 2000-272040 discloses a fiber reinforced composite comprising a fiber fabric that comprises heat resistant textiles or fiber bundle with a polymer matrix adhered to the fabric (see reference claim 4). Additionally, the '040 reference discloses that the fiber bundle comprises glass fiber and carbon fiber (see paragraph 0007). The '040 reference discloses that the polymeric matrix adhered to the fabric increases interlaminar strength. Therefore, it would have been obvious to one of ordinary skill in the art to have the JP 10-194856 reference have the ceramic matrix adhered to the fabric in order to have a fabric that has high strength and excellent thermal characteristics. The '856 reference does not disclose a slurry method or a PIP method. Yamaguchi discloses a ceramic composite wherein the ceramic matrix is SiC with SiC fiber dispersed therein. Yamaguchi discloses a slurry treatment and a PIP treatment (see

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Yamaguchi reference claims). The slurry treatment and PIP treatment affect fiber impregnation. Therefore, it would have been obvious to one of ordinary skill in the art that a slurry treatment and PIP treatment in the Japanese reference would increase the efficiency of fiber impregnation.

Response to Arguments

13. Applicant's arguments with respect to the present claims have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If

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attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D.

Lawrence Tarazano, can be reached at (571) 272-1515. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or would like access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/

Supervisory Patent Examiner, Art Unit 1794